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(54) **Visor for a protective helmet for winter use**

(57) Visor (1) for a protective helmet (6) designed for winter use, especially for use in winter sports, said visor being attached to the protective helmet by means of fixing elements (7) and mainly consisting of a plastic plate, preferably a polycarbonate plate (2), fitted to a

shape appropriate for the helmet. The plastic plate is coated both on the outer surface and on the inner surface in such manner that the outer surface has a coating (4) substantially harder than the rest of the plate and the inner surface has a coating (5) substantially preventing the plate from getting rimed.

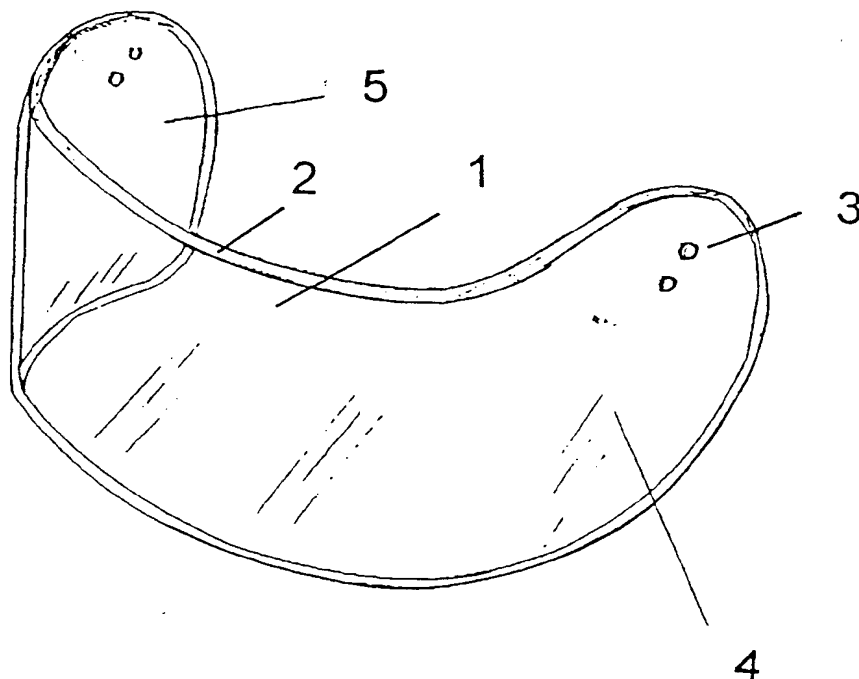


FIG. 1

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Description

The present invention relates to a visor for a protective helmet as defined in the preamble of claim 1.

At present, protective helmets for ice hockey players are mostly provided with protective visors made of polycarbonate, which are fixed to the helmet. They are especially designed to protect the eyes against injuries during a game, e.g. injuries that may result from the puck hitting a player.

The drawbacks of polycarbonate visors include, on the one hand, the fact that the visor gets scratched on the outside and, on the other hand, that the visor gets rimed on the inside during a game.

The object of the present invention is to eliminate the drawbacks of prior-art helmet visors and to achieve a completely new type of visor for a protective helmet for winter use. As stated in the attached claims, the visor of the invention is characterized in that a polycarbonate plate is provided with a coating both on the inside and on the outside, the outer surface having a coating that is substantially harder than the rest of the visor plate while the inner surface has a coating that substantially prevents it from getting rimed.

The invention makes it possible to achieve a visor which does not get rimed during a game and whose useful life is significantly extended, allowing economical savings to be achieved.

In the following, the invention is described in detail by referring to the attached drawings, in which Fig. 1 presents a visor for an ice hockey helmet according to the invention, and Fig. 2 presents the visor of the invention attached to an ice hockey helmet.

Fig. 1 presents a visor for an ice hockey helmet as provided by the invention. It consists of a polycarbonate plate 2 shaped to protect the region of the eyes and so bent that it can be attached to the helmet via holes 3 provided in the area of the temples.

The polycarbonate plate 2 of the visor 1 is coated on both sides in such manner that the visor has on its outside surface, which is subject to heavier wear, a coating 4 substantially harder than the rest of the plate. This ensures that the visor will not get scratched as easily as prior-art visors. In addition, the inner surface, i.e. the side facing towards the user's face, is provided with an antidim coating 5 which prevents the visor from getting rimed during a game. The polycarbonate plate 2 may consist e.g. of a polycarbonate plate coated on both sides as provided by the invention, of a thickness typically about 2 - 4 mm, e.g. 3 mm, and having a surface hardness value of e.g. 2.6 (Sandriessel % Haze), while a conventional polycarbonate plate typically has a hardness value of about 22, which means that the visor of the invention has an outer surface about 8.46 times as hard as that of currently used visors. Moreover, the so-called ANTI-FOG value of the coating 5 on the inner surface of the polycarbonate plate of the invention, which measures the length of time that the helmet can be used

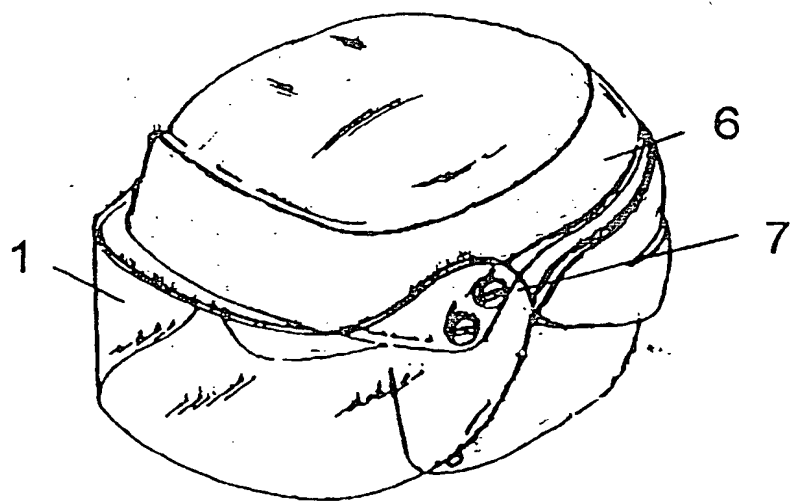
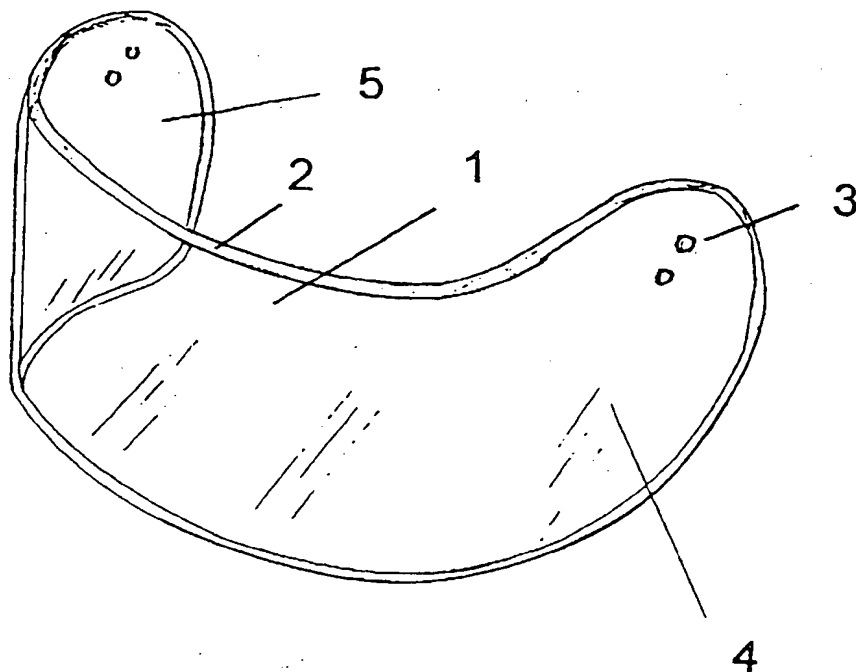
without the inner surface getting rimy, is several tens of minutes, e.g. about 30 min., whereas the usual time limit within which the inner surface must not get rimed is considered to be 10 s.

Fig. 2 shows how the visor 1 of the invention is attached to an ice hockey helmet 6 by means of screws 7 located opposite the temples.

It is obvious to a person skilled in the art that the embodiments of the invention are not restricted to the example described above, but that they can be varied within the scope of the claims presented below. Thus, the helmet may just as well be a protective helmet used in bandy or other winter sport or e.g. when driving a motor sledge.

Claims

1. Visor (1) for a protective helmet (6) designed for winter use, especially for use in winter sports, said visor being attached to the protective helmet by means of fixing elements (7) and mainly consisting of a plastic plate, preferably a polycarbonate plate (2), fitted to a shape appropriate for the helmet, **characterized** in that the plastic plate is coated both on the outer surface and on the inner surface in such manner that the outer surface has a coating (4) substantially harder than the rest of the plate to prevent it from getting scratched, while the inner surface has a coating (5) that substantially prevents the plate from getting rimed.
2. Visor as defined in claim 1, **characterized** in that the surface hardness value (SANDRIESSEL % Haze) of the coating (4) on the outer surface is less than 10, preferably below 5, for instance 2.6.
3. Visor as defined in claim 1, **characterized** in that the so-called ANTI-FOG value of the coating (5) on the inner surface of the polycarbonate plate, said value indicating the length of time that the visor can be used without its inner surface getting rimed, is substantially greater than 10 s, preferably over 1 min, for instance 30 min.





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EUROPEAN SEARCH REPORT

Application Number
EP 97 20 0056

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	DE 33 23 419 A (H. VOSS) * page 4, paragraphs 2, 3 * * page 5, paragraphs 4, 5 * * page 6, two last paragraphs * * claims 1,7-10; figures *	1	A42B3/22 A42B3/24
A	---	2,3	
X	EP 0 264 821 A (UVEX WINTER OPTIK GMBH) * column 3, line 25 - line 54 * * claims; figures *	1	
A	---	2,3	
X	US 5 281 469 A (P. BAIOCCHI) * the whole document *	1	
A	---	2,3	
A	US 4 101 980 A (W. STEPAN ET AL.) * column 1, line 44 - line 52 * * column 3, lines 3-16, 24-36, 51-56 * * claims 1,7; figures 1-3 *	1-3	
A	PATENT ABSTRACTS OF JAPAN vol. 095, no. 004, 31 May 1995 & JP 07 003515 A (SUTARAARITO KOGYO KK), 6 January 1995, * abstract *	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6) A42B
A	CA 2 048 927 A (G. A. GAUTHIER) * the whole document *	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 24 April 1997	Examiner Bourseau, A-M
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